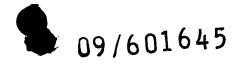


1 GCAGCGCTGC GTCCTGCTGC GCACGTGGGA AGCCCTGGCC CCGGCCACCC CCGCGATGCC 61 GCGCGCTCCC CGCTGCCGAG CCGTGCGCTC CCTGCTGCGC AGCCACTACC GCGAGGTGCT 121 GCCGCTGGCC ACGTTCGTGC GGCGCCTGGG GCCCCAGGGC TGGCGGCTGG TGCAGCGCGG 181 GGACCCGGCG GCTTTCCGCG CGCTGGTGGC CCAGTGCCTG GTGTGCGTGC CCTGGGACGC 241 ACGGCCGCCC CCCCCCTCCTTCCG CCAGGTGTCC TGCCTGAAGG AGCTGGTGGC 301 CCGAGTGCTG CAGAGGCTGT GCGAGCGCGG CGCGAAGAAC GTGCTGGCCT TCGGCTTCGC 361 GCTGCTGGAC GGGGCCCGCG GGGGCCCCCC CGAGGCCTTC ACCACCAGCG TGCGCAGCTA 421 CCTGCCCAAC ACGGTGACCG ACGCACTGCG GGGGAGCGGG GCGTGGGGGC TGCTGCTGCG 481 CCGCGTGGGC GACGACGTGC TGGTTCACCT GCTGGCACGC TGCGCGCTCT TTGTGCTGGT 541 GGCTCCCAGC TGCGCCTACC AGGTGTGCGG GCCGCCGCTG TACCAGCTCG GCGCTGCCAC 601 TCAGGCCCGG CCCCCGCCAC ACGCTAGTGG ACCCCGAAGG CGTCTGGGAT GCGAACGGGC 661 CTGGAACCAT AGCGTCAGGG AGGCCGGGGT CCCCCTGGGC CTGCCAGCCC CGGGTGCGAG 721 GAGGCGCGGG GGCAGTGCCA GCCGAAGTCT GCCGTTGCCC AAGAGGCCCA GGCGTGGCGC 781 TGCCCCTGAG CCGGAGCGGA CGCCCGTTGG GCAGGGGTCC TGGGCCCACC CGGGCAGGAC 841 GCGTGGACCG AGTGACCGTG GTTTCTGTGT GGTGTCACCT GCCAGACCCG CCGAAGAAGC 901 CACCTCTTTG GAGGGTGCGC TCTCTGGCAC GCGCCACTCC CACCCATCCG TGGGCCGCCA 961 GCACCACGCG GGCCCCCCAT CCACATCGCG GCCACCACGT CCCTGGGACA CGCCTTGTCC 1021 CCCGGTGTAC GCCGAGACCA AGCACTTCCT CTACTCCTCA GGCGACAAGG AGCAGCTGCG 1081 GCCCTCCTTC CTACTCAGCT CTCTGAGGCC CAGCCTGACT GGCGCTCGGA GGCTCGTGGA 1141 GACCATCTTT CTGGGTTCCA GGCCCTGGAT GCCAGGGACT CCCCGCAGGT TGCCCCGCCT 1201 GCCCCAGCGC TACTGGCAAA TGCGGCCCCT GTTTCTGGAG CTGCTTGGGA ACCACGCGCA 1261 GTGCCCCTAC GGGGTGCTCC TCAAGACGCA CTGCCCGCTG CGAGCTGCGG TCACCCCAGC 1321 AGCCGGTGTC TGTGCCCGGG AGAAGCCCCCA GGGCTCTGTG GCGGCCCCCG AGGAGGAGGA 1381 CACAGACCCC CGTCGCCTGG TGCAGCTGCT CCGCCAGCAC AGCAGCCCCT GGCAGGTGTA 1441 CGGCTTCGTG CGGGCCTGCC TGCGCCGGCT GGTGCCCCCA GGCCTCTGGG GCTCCAGGCA 1501 CAACGAACGC CGCTTCCTCA GGAACACCAA GAAGTTCATC TCCCTGGGGA AGCATGCCAA 1561 GCTCTCGCTG CAGGAGCTGA CGTGGAAGAT GAGCGTGCGG GACTGCGCTT GGCTGCGCAG 1621 GAGCCCAGGG GTTGGCTGTG TTCCGGCCGC AGAGCACCGT CTGCGTGAGG AGATCCTGGC 1681 CAAGTTCCTG CACTGGCTGA TGAGTGTGTA CGTCGTCGAG CTGCTCAGGT CTTTCTTTA 1741 TGTCACGGAG ACCACGTTTC AAAAGAACAG GCTCTTTTTC TACCGGAAGA GTGTCTGGAG 1801 CAAGTTGCAA AGCATTGGAA TCAGACAGCA CTTGAAGAGG GTGCAGCTGC GGGAGCTGTC 1861 GGAAGCAGAG GTCAGGCAGC ATCGGGAAGC CAGGCCCGCC CTGCTGACGT CCAGACTCCG 1921 CTTCATCCCC AAGCCTGACG GGCTGCGGCC GATTGTGAAC ATGGACTACG TCGTGGGAGC 1981 CAGAACGTTC CGCAGAGAAA AGAGGGCCGA GCGTCTCACC TCGAGGGTGA AGGCACTGTT 2041 CAGCGTGCTC AACTACGAGC GGGCGCGGCG CCCCGGCCTC CTGGGCGCCT CTGTGCTGGG 2101 CCTGGACGAT ATCCACAGGG CCTGGCGCAC CTTCGTGCTG CGTGTGCGGG CCCAGGACCC 2161 GCCGCCTGAG CTGTACTTTG TCAAGGTGGA TGTGACGGGC GCGTACGACA CCATCCCCCA 2221 GGACAGGCTC ACGGAGGTCA TCGCCAGCAT CATCAAACCC CAGAACACGT ACTGCGTGCG 2281 TCGGTATGCC GTGGTCCAGA AGGCCGCCCA TGGGCACGTC CGCAAGGCCT TCAAGAGCCA 2341 CGTCTCTACC TTGACAGACC TCCAGCCGTA CATGCGACAG TTCGTGGCTC ACCTGCAGGA 2401 GACCAGCCCG CTGAGGGATG CCGTCGTCAT CGAGCAGAGC TCCTCCCTGA ATGAGGCCAG 2461 CAGTGGCCTC TTCGACGTCT TCCTACGCTT CATGTGCCAC CACGCCGTGC GCATCAGGGG 2521 CAAGTCCTAC GTCCAGTGCC AGGGGATCCC GCAGGGCTCC ATCCTCTCCA CGCTGCTCTG 2581 CAGCCTGTGC TACGGCGACA TGGAGAACAA GCTGTTTGCG GGGATTCGGC GGGACGGGCT 2641 GCTCCTGCGT TTGGTGGATG ATTTCTTGTT GGTGACACCT CACCTCACCC ACGCGAAAAC 2701 CTTCCTCAGG ACCCTGGTCC GAGGTGTCCC TGAGTATGGC TGCGTGGTGA ACTTGCGGAA 2761 GACAGTGGTG AACTTCCCTG TAGAAGACGA GGCCCTGGGT GGCACGGCTT TTGTTCAGAT 2821 GCCGGCCCAC GGCCTATTCC CCTGGTGCGG CCTGCTGCTG GATACCCGGA CCCTGGAGGT 2881 GCAGAGCGAC TACTCCAGCT ATGCCCGGAC CTCCATCAGA GCCAGTCTCA CCTTCAACCG 2941 CGGCTTCAAG GCTGGGAGGA ACATGCGTCG CAAACTCTTT GGGGTCTTGC GGCTGAAGTG 3001 TCACAGCCTG TTTCTGGATT TGCAGGTGAA CAGCCTCCAG ACGGTGTGCA CCAACATCTA 3061 CAAGATCCTC CTGCTGCAGG CGTACAGGTT TCACGCATGT GTGCTGCAGC TCCCATTTCA 3121 TCAGCAAGTT TGGAAGAACC CCACATTTTT CCTGCGCGTC ATCTCTGACA CGGCCTCCCT 3181 CTGCTACTCC ATCCTGAAAG CCAAGAACGC AGGGATGTCG CTGGGGGCCA AGGGCGCCGC 3241 CGGCCTCTG CCCTCCGAGG CCGTGCAGTG GCTGTGCCAC CAAGCATTCC TGCTCAAGCT 3301 GACTCGACAC CGTGTCACCT ACGTGCCACT CCTGGGGTCA CTCAGGACAG CCCAGACGCA

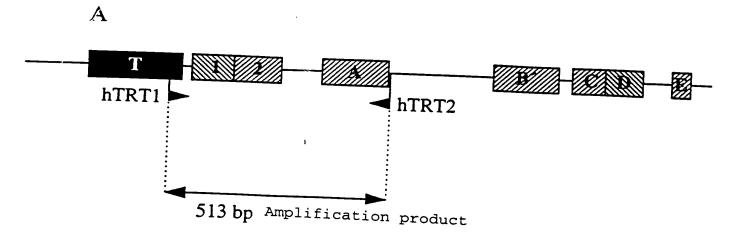
- 49 -



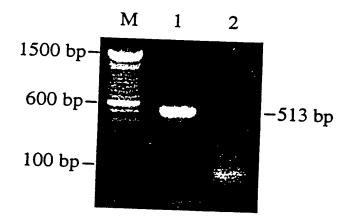


- 50 -

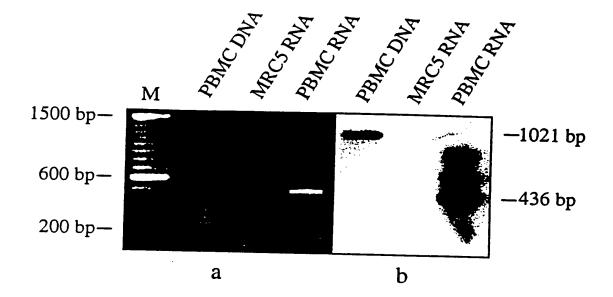
3361	GCTGAGTCGG	AAGCTCCCGG	GGACGACGCT	GACTGCCCTG	GAGGCCGCAG	CCAACCCGGC
3421	ACTGCCCTCA	GACTTCAAGA	CCATCCTGGA	CTGATGGCCA	CCCGCCCACA	GCCAGGCCG2
3481	GAGCAGACAC	CAGCAGCCCT	GTCACGCCGG	GCTCTACGTC	CCAGGGAGGG	AGGGGGGGC
3541	CACACCCAGG	CCCGCACCGC	TGGGAGTCTG	AGGCCTGAGT	GAGTGTTTGG	CCGAGGCCTG
3601	CATGTCCGGC	TGAAGGCTGA	GTGTCCGGCT	GAGGCCTGAG	CGAGTGTCCA	GCCAAGGGCT
3661	GAGTGTCCAG	CACACCTGCC	GTCTTCACTT	CCCCACAGGC	TGGCGCTCGG	CTCCACCCCA
3721	GGGCCAGCTT	TTCCTCACCA	GGAGCCCGGC	TTCCACTCCC	CACATAGGAA	TAGTCCATCC
3781	CCAGATTCGC	CATTGTTCAC	CCCTCGCCCT	GCCCTCCTTT	GCCTTCCACC	CCCACCATCC
3841	AGGTGGAGAC	CCTGAGAAGG	ACCCTGGGAG	CTCTGGGAAT	TTGGAGTGAC	CAAAGGTGTG
3901	CCCTGTACAC	AGGCGAGGAC	CCTGCACCTG	GATGGGGGTC	CCTGTGGGTC	AAATTGGGGG
3961	GAGGTGCTGT	GGGAGTAAAA	TACTGAATAT	ATGAGTTTTT	CAGTTTTGAA	AAAAA



В

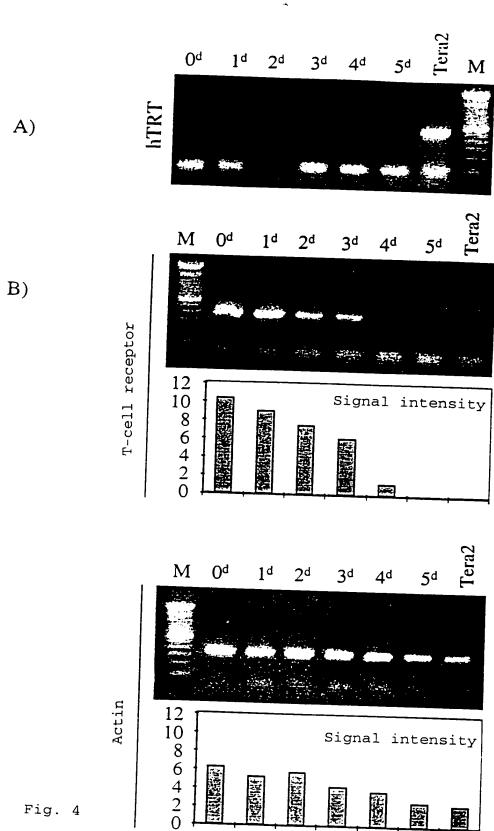


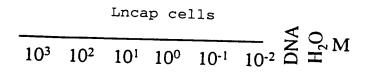


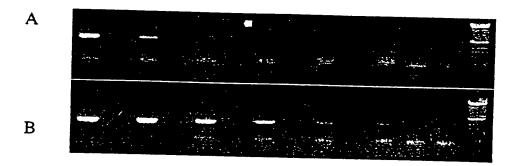


- 52 **-**

Fig. 3









- 55 ~

Catalytic sububit of human telomerase

Name	Sequence (5'-3)	
hTRT 1 hTRT 2 hTRT 0	CTACCGGAAGAGTGTCTGGAGCAAGTTGCAAAGC GGCATACCGACGCACGCAGTACGTGTTCTG CGTTCTGGCTCCCACGACGTAGTC	

T-cell receptor:

Name	Sequence (5'-3)	
TCR 1 TCR 2	GAGGTCGCTGTGTTTGAGCCATCAGAAG GATCTCATAGAGGATGGTGGCAGACAG	

β -actin:

Name	Sequence (5'-3)		
Act 1 Act 2	GATGATGATATCGCCGCGCTCGTC CTCAAACATGATCTGGGTCATCTTC		

$\hat{\beta}\text{-globin:}$

Name	Sequence (5'-3)	
Glob 1 Glob 2	ACCCAGAGGTTCTTTGAGTC TCTGATAGGCAGCCTGCACT	

Whole blood/Ficoll-isolated PBMC RNA isolation using the 'whole blood protocol or standard methods such as phenol/chloroform or silica gel column total RNA Amount of RNA corresponding to a certain vol. (e.g. 1 ml) of whole blood buffer: 100 mM Tris/Cl, DNase- digest pH 8.3 50 mM KCl 30'/37°C, 10'/75°, 10"/90°C 5 mM MgCl₂ → immediately on ice 1 mM dNTP- mix $2.5~\mu\text{M}$ random hexamer 4U Rnase-free DNase ū 40U RNase inhibitor m in a volume of 36 μ l sample (18 μ l) negative control (18 μ l) T + 50U MuLV RT + 4 µl DEPC water + 40U Rnase inhibitor reverse traskriptase reaction 30'/42°C, 5'/99° cDNA (cDNA) buffer: 100 mM Tris/Cl, PCR-reaction pH 8.3 50 mM KCl 2 mM MgCl₂ 200 µM dNTP-mix 2.5U AmpliTag DNA analysis/quantification polymerase 300 µM per primer in a volume of 25 μ l

1) PCR-conditions:

15"/97°C(15"/97°C,30"/70°C,-0.5°C/cycle,30"/72°C)x10 (15"/94°C,30"/65°C,-0.5°C/cycle,30"/72°C)x20 (15"/94°C,30"/50°C,30"(ext.15"/cycle)/72°C)x10

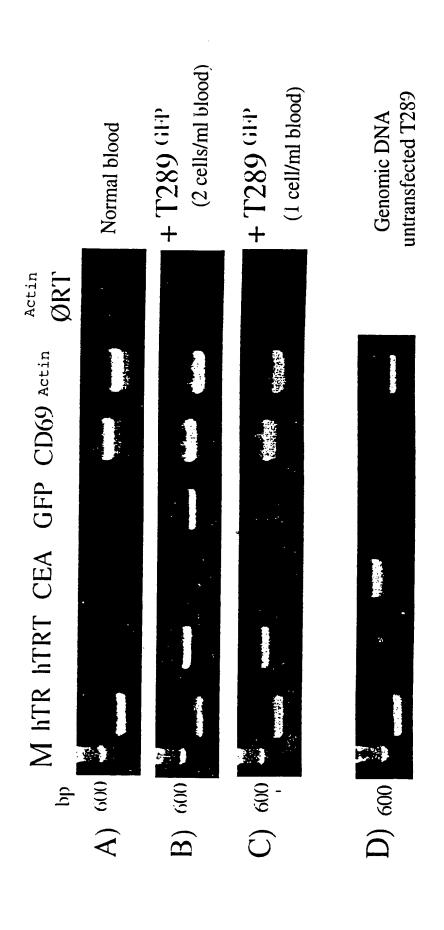


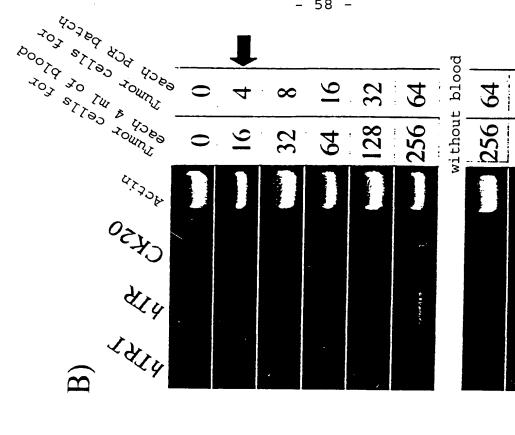
Fig. 8

poold so la p

4380 403

4chin

s_I I ount



ohne Blut 128 Prostate carcinoma (PC-3) THE STATE OF

128

0.4.053

2

Mamma carcinoma (MD MB-435s)

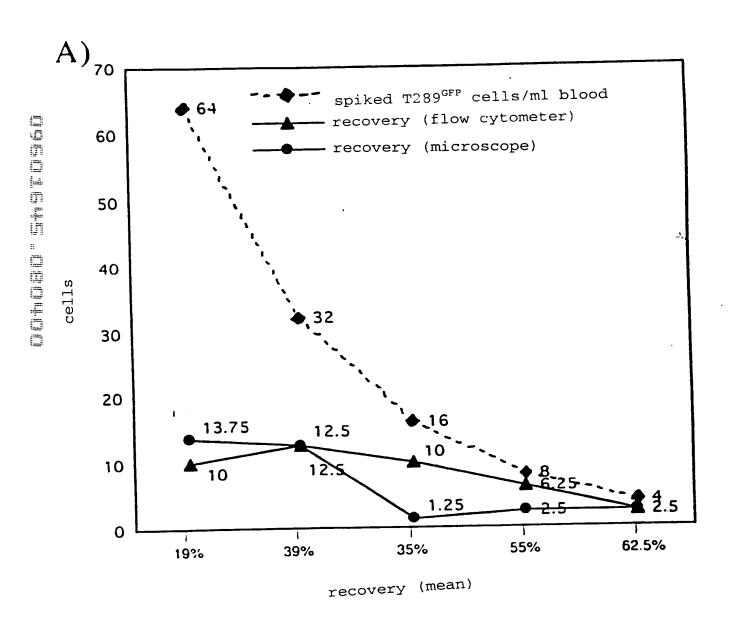


Fig. 10

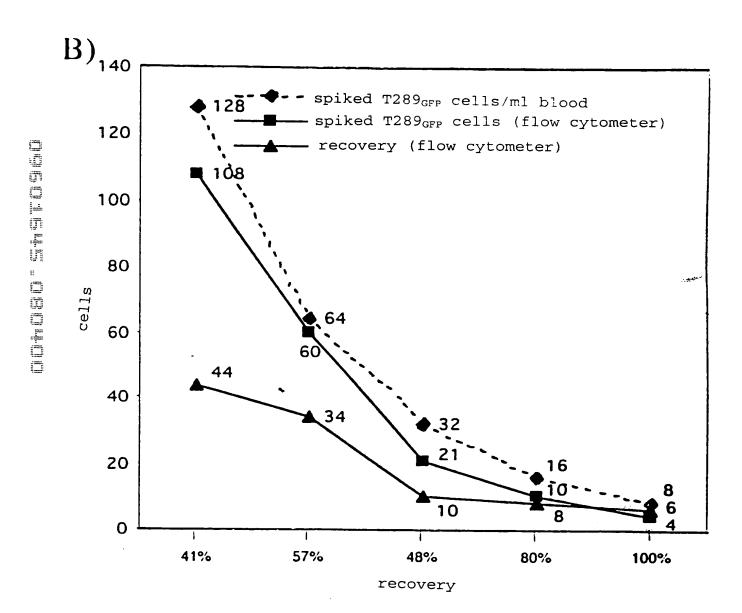


Fig. 10

526 Rec'd PCT/PTO 04 AUG 2000

SEQUENCE LISTING

- <110> Dr. Dr. Michael Dahm
- <120> Method for the quantitative determination of tumor cells in a body fluid and test kits suitable therefor
- <130>
- <140> PCT/EP99/00716
- <141> 1999-02-03
- <150> DE 198 04 372.4
- <151> 1998-02-04
- <160> 10
- <170> PADAT Sequenzmodul, Version 1.0

```
<210> 1
 <211> 34
 <212> DNA
 <213> Homo sapiens
 <220>
 <223>
 <400> 1
    ctaccggaag agtgtctgga gcaagttgca aagc
                                                                34
<210> 2
<211> 30
<212> DNA
<213> Homo sapiens
<220>
<223>
<4.00> 2
    ggcataccga cgcacgcagt acgtgttctg
                                                                30
<210> 3
<211> 20
<212> DNA
<213> Homo sapiens
<220>
<223>
<400> 3
```

20

acccagaggt tctttgagtc

```
<210> 4
<211> 20
<212> DNA
<213> Homo sapiens
<220>
<223>
<400> 4
                                                                20
    tctgataggc agcctgcact
<210> 5
<211> 24
<212> DNA
<213> Homo sapiens
<220>
<223>
<400> 5
                                                                24
    gatgatgata tcgccgcgct cgtc
<210> 6
<211> 25
<212> DNA
<213> Homo sapiens
<220>
<223>
<400> 6
                                                                25
    ctcaaacatg atctgggtca tcttc
```

<210> 7	
<211> 28	
<212> DNA	
<213> Homo sapiens	
<220>	
<223>	
<400> 7	
gaggtegetg tgtttgagee atcagaag	28
<210> 8	
<211> 27	
<212> DNA	
<213> Homo sapiens	
<220>	
<223>	
<400> 8	
gatctcatag aggatggtgg cagacag	27
<210> 9	
<211> 24	
<212> DNA	
<213> Homo sapiens	
<220>	
<223>	
<400> 9	

cgttctggct cccacgacgt agtc

24

```
<210> 10
<211> 4015
<212> DNA
<213> Homo sapiens
<220>
<223>
<400> 10
```

```
geagegetge gteetgetge geaegtggga agecetggee eeggeeacce eegggatgee
                                                                    60
                                                                   120
gegegetece egetgeegag eegtgegete eetgetgege agecaetace gegaggtget
                                                                   180
geogetggee aegttegtge ggegeetggg geeceaggge tggeggetgg tgeagegegg
                                                                   240
ggacceggeg gettteegeg egetggtgge eeagtgeetg gtgtgegtge eetgggaege
                                                                   300
acggeegeee eeegeegeee eeteetteeg eeaggtgtee tgeetgaagg agetggtgge
                                                                   360
ccgagtgctg cagaggctgt gcgagcgcgg cgcgaagaac gtgctggcct tcggcttcgc
                                                                   420
getgetggae ggggeeegeg ggggeeecee egaggeette accaecageg tgegeageta
                                                                   480
cctgcccaac acggtgaccg acgcactgcg ggggagcggg gcgtgggggc tgctgctgcg
                                                                   540
ccgcgtgggc gacgacgtgc tggttcacct gctggcacgc tgcgcgctct ttgtgctggt
ggeteceage tgegeetace aggtgtgegg geegeegetg taccageteg gegetgeeac
                                                                   660
teaggeeegg ceeeegeeae aegetagtgg acceegaagg egtetgggat gegaaeggge
                                                                   720
ctggaaccat agcgtcaggg aggccggggt ccccctgggc ctgccagccc cgggtgcgag
gaggegeggg ggeagtgeea geegaagtet geegttgeee aagaggeeea ggegtggege
                                                                   840
tgcccctgag ccggagcgga cgcccgttgg gcaggggtcc tgggcccacc cgggcaggac
gegtggaeeg agtgaeegtg gtttetgtgt ggtgteaeet geeagaeeeg eegaagaage
cacctetttg gagggtgege tetetggeae gegecaetee cacceateeg tgggeegeea
gcaccacgeg ggccccccat ccacategeg gccaccacgt ccctgggaca egecttgtcc 1020
eceggtgtac geogagaeca ageaetteet etaeteetea ggegaeaagg ageagetgeg 1080
geoeteette etaeteaget etetgaggee eageetgaet ggegetegga ggetegtgga 1140
gaccatettt etgggtteca ggeeetggat geeagggaet eeeegeaggt tgeeeegeet 1200
geoceagege tactggeaaa tgeggeeeet gtttetggag etgettggga accaegegea 1260
gtgcccctac ggggtgctcc tcaagacgca ctgcccgctg cgagctgcgg tcaccccage 1320
ageeggtgte tgtgeeeggg agaageeeca gggetetgtg geggeeeeeg aggaggagga 1380
cacagacccc cgtcgcctgg tgcagctgct ccgccagcac agcagcccct ggcaggtgta 1440
eggettegtg egggeetgee tgegeegget ggtgeeceea ggeetetggg geteeaggea 1500
caacgaacge egetteetea ggaacaccaa gaagtteate teeetgggga agcatgecaa 1560
getetegetg caggagetga cgtggaagat gagegtgegg gaetgegett ggetgegeag 1620
gageceaggg gttggetgtg tteeggeege agageacegt etgegtgagg agateetgge 1680
```

caagtteetg caetggetga tgagtgtgta egtegtegag etgeteaggt etttetttta 1740 tgtcacggag accacgtttc aaaagaacag gctctttttc taccggaaga gtgtctggag 1800 caagttgcaa agcattggaa tcagacagca cttgaagagg gtgcagctgc gggagctgtc 1860 ggaagcagag gtcaggcagc atcgggaagc caggcccgcc ctgctgacgt ccagactccg 1920 etteateese aagestgasg ggetgegges gattgtgaas atggastasg tegtgggags 1980 cagaacgttc cgcagagaaa agagggccga gcgtctcacc tcgagggtga aggcactgtt 2040 cagcgtgctc aactacgagc gggcgcggcg ccccggcctc ctgggcgcct ctgtgctggg 2100 cetggacgat atccacaggg cetggegeae ettegtgetg egtgtgeggg cecaggacee 2160 gccgcctgag ctgtactttg tcaaggtgga tgtgacgggc gcgtacgaca ccatccccca 2220 ggacaggete aeggaggtea tegecageat cateaaacee cagaacaegt aetgegtgeg 2280 teggtatgee gtggteeaga aggeegeeca tgggeacgte egeaaggeet teaagageea 2340 cgtctctacc ttgacagacc tccagccgta catgcgacag ttcgtggctc acctgcagga 2400 gaccageceg etgagggatg eegtegteat egageagage teeteeetga atgaggeeag 2460 cagtggcctc ttcgacgtct tcctacgctt catgtgccac cacgccgtgc gcatcagggg 2520 caagteetae gteeagtgee aggggateee geagggetee atecteteea egetgetetg 2580 cagectgtge taeggegaea tggagaaeaa getgtttgeg gggattegge gggaeggget 2640 geteetgegt tiggiggatg atticitigti ggigaeaeet caecteaeee aegegaaaae 2700 cttcctcagg accetggtcc gaggtgtccc tgagtatggc tgcgtggtga acttgcggaa 2760 gacagtggtg aactteeetg tagaagaega ggeeetgggt ggeaeggett ttgtteagat 2820 geoggeocae ggeotattee cetggtgegg cetgetgetg gataceegga ceetggaggt 2880 gcagagegae tactecaget atgeceggae etecateaga gecagtetea cetteaaceg 2940 cggcttcaag gctgggagga acatgcgtcg caaactcttt ggggtcttgc ggctgaagtg 3000 tcacagectg tttctggatt tgcaggtgaa cagectccag acggtgtgca ccaacateta 3060 caagateete etgetgeagg egtacaggtt teaegeatgt gtgetgeage teeeatttea 3120 tcagcaagtt tggaagaacc ccacattttt cctgcgcgtc atctctgaca cggcctccct 3180 ctgctactcc atcctgaaag ccaagaacgc agggatgtcg ctgggggcca agggcgccgc 3240 eggeeetetg eecteegagg eegtgeagtg getgtgeeac caageattee tgetcaaget 3300 gactogacae egtgteacet acgtgceact eetggggtea etcaggacag eccagacgea 3360 gctgagtcgg aagctcccgg ggacgacgct gactgccctg gaggccgcag ccaacccggc 3420 actgecetea gaetteaaga eeateetgga etgatggeea eeegeeeaca geeaggeega 3480 gagcagacac cagcagccct gtcacgccgg gctctacgtc ccagggaggg aggggcggcc 3540 cacacccagg cccgcaccgc tgggagtctg aggcctgagt gagtgtttgg ccgaggcctg 3600 catgtccggc tgaaggctga gtgtccggct gaggcctgag cgagtgtcca gccaagggct 3660 gagtgtccag cacacetgee gtetteaett ceceacagge tggegetegg etecacecca 3720 gggccagett tteeteacea ggagecegge tteeacteee cacataggaa tagtecatee 3780 ccagattege cattgiteae ecetegeeet geeeteetti geetteeaee eceaecatee 3840 aggtggagac cctgagaagg accctgggag ctctgggaat ttggagtgac caaaggtgtg 3900

